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Chief, EUCA
ATTN: Communications Officer, PCB
Chief, KUCLUB

25X1

Engineering

AMG-10 Tape Keyer/HP-4 Hand Perforator

25X1

REF: dated 28 September 1955

The subject keyer and perforator have been received at Headquarters. These units will be evaluated and the results forwarded to you as soon as practicable.

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R&D (4 Nov. 1955)

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25X1

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[redacted] Tape Keyer 25X1

1. A standard model of the ASG-10 tape keyer was recently given to [redacted] and the following comments are the results of an examination of the unit [redacted]. 25X1 25X1

2. DESCRIPTION

With the exception of the tape pulling wheels and the various controls, all parts of the keyer are mounted in a case 4 3/8" H X 6 17/32" W X 3 1/2" D. The case is constructed of 7/32" steel. A 3/32" steel cover is attached to the case by numerous 6-32 machine screws.

The whole case is mounted on 3/8" sponge rubber to reduce noise from the motor while the cover is lined with 1/8" material of the same type to help further reduce the motor brush and relay noises from being too noticeable.

External controls and connections consist of:

A. On-Off toggle switch
B. Panel fuse holder (200 ma)
C. Speed control calibrated 50, 100, 150 and 200 (ciphers per min)
D. Tape slot and spring loaded friction wheel
E. Two insulated jacks for circuit to be keyed
F. 3' line cord terminated with standard European power plug

Internal components of the unit are:

A. Motor speed control, 10 watt 20 K variable resistor
B. DPST toggle switch, On-Off
C. Variable speed ball bearing motor with 20 to 1 gear reduction box (Dunkermotor-Oberbreisig/Rh. 200 v = 3000 U/m)
D. SPDT keying relay
E. Line filter and keying circuit filter
F. DC supply for the keying relay

Although the unit is designed to operate from 220v AC it will also operate on 110v AC with a resultant decrease in the maximum keying speeds. On 220v it is rated at 60 to 200 ciphers per minute and on 110v this drops to 15 to 100 ciphers per minute. Note: five ciphers equal one word. Even though the unit will operate on 110v it is suggested that a step up transformer be used as the voltage in the relay circuit is lowered. The motor was selected especially for its torque producing ability at low speeds.

The keying circuit is completely isolated from the case of the keyer unit and consists mainly of the SPDT relay points and a simple click filter. As no voltages are inserted into this circuit by the keyer it is possible to key any transmitter that is capable of being keyed in this speed range (up to 40 wpm) as long as the current through the relay points is not excessive.

The unit operates from standard Wheatstone perforated tape.

3. OPERATION

The ASG-10 was used to key an RT-1, and RS-6 and a code practice oscillator and performed well. The only special feature to be observed in the operation of the unit is the cutting of the tape (as shown in Note 1) to avoid a continuous activation of the keyed circuit as the tape ends pass over the sensing pins.

4. COMMENTS

A. Although the major construction practice employed throughout is good, individual instances of weak component mounting and loose thin wires occur.

B. The keying relay is of the plug-in type and is mounted horizontally, should the unit be jarred it is quite possible that the relay could become loosened and the unit not function or worse the loosened relay could short the line voltage to the case.

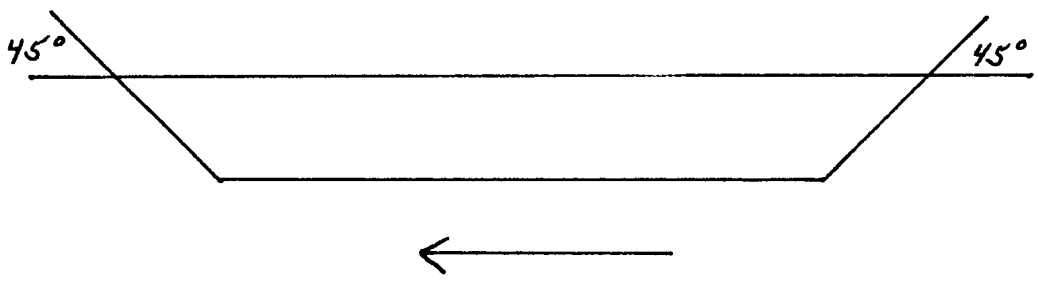
C. The relay power supply rectifier is mounted beneath and quite close to the motor.

D. The springs providing the tension to the tape sensing pins are not of a sturdy type.

5. RECOMMENDATIONS

It is recommended that corrective action be taken in regards to paragraph 4 A. A study should be made of the conditions in paragraph 4 B, C and D to ascertain whether mechanical design changes are required to improve the long term operation of the unit once [redacted]. 25X1

Note 1.



1. The hand perforator is designed as a companion unit to the ASG-10 keyer; its function is to perforate tape in the International Morse code according to the Wheatstone system.

2. DESCRIPTION

The unit is mounted on a base of solid steel 5 11/16" L X 3 1/8" W X 5/16". The maximum vertical height of the unit is 2 3/8". Three levers, dot, dash and space, when depressed, punch holes in the tape and actuate a pulling-spacing arrangement to advance the tape after each operation. The unit is completely mechanical and requires no source of electrical power.

3. OPERATION

To use the perforator is, in theory, quite simple; the tape is placed in the guide slot and a few guide holes are punched while the operator manually advances the tape until the punching and advancing mechanisms are synchronized. From that point on the unit is operated by depressing the lever desired and releasing until whole letters are punched out element by element. In actual operation the unit is difficult to operate as each lever must be firmly operated completely throughout its travel of 1 1/4" for correct advancement of the tape. All levers have excessive play in the vertical and horizontal directions and, due to the poor design of the pulling arrangement, the tape often breaks during operation.

4. COMMENTS

The unit is not practical or useful in its present form and requires excessive time and care to ensure its correct operation.

5. RECOMMENDATIONS

It is recommended that the entire unit be redesigned with more emphasis toward simplicity of operation, reduction in size, closer constructional tolerances and reliability of operation.